

# NWS Weather Event Simulator 5.0 Instructions

NWS Warning Decision Training Branch

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# **WES5.0 Release Notes**

## **What's New in WES5.0**

### **1. Updated with AWIPS OB5.0**

- TDWR data processing capability
- Dig DMD product included in each radar (kxxx) Graphics menu
- <casename>/procs directory is no longer used in OB5.0 to store procedures. Now procedures are stored in the <casename>/userPrefs directory

### **2. Improved Performance:**

- WES feeds data to AWIPS every 15 seconds resulting in radar scans being displayed individually instead of in groups
- Added AWIPS processes check to alert user to hung processes that can cause failed simulations
- Conversion to DRT format adds links making all data visible after conversion is complete

### **3. Enhanced Case Review Application:**

- New tool to start D2D with enhanced capabilities for case review
- Initiates AWIPS processes needed to fully enable FFMP and SCAN tables in case review of original or DRT format data
- WarnGen is not operational in Enhanced Case Review (still need to run a simulation for this)

### **4. Storm Track Information**

- STI product made visible in a simulation (if archived) allowing for algorithm motion to be included in 8 BIT SRM product through the Radar Display Controls

### **5. WESSL:**

- Added ability to view many more image types in WESSL using the “-image” tool
- Added a “-scrolltext” tool which adds a vertical scrollbar to text thus preventing long lines of text from disappearing off-screen

6. **WES Bug Fixes:** The following bugs were fixed in WES 5.0

- Running a simulation immediately after creating FFMP data caused the FFMP processor to fail in the simulation
- Missing DMD directory structure caused failed set start time

7. **start\_awips, start\_simulator, enhanced\_case\_review added to path**

- It is no longer necessary to be in the DRT directory in order to run these commands from a shell window.

8. **Updated Interstate / Radar Shapefiles and afos PIL files:**

- The interstate shapefiles (us\_inter.\*) were updated from the NOAA1 server (in010605.\*) to fix an incorrect labeling problem
- The radar shapefiles (fsl-w88d.\*) were also updated with the latest version (w805my05.\*)
- afos2awips and afosMasterPIL text files were updated from the NOAA1 server on July 22, 2005

## WES5.0 Known Problems

1. **SCAN and DMD Data:**

- The format of both SCAN and DMD data has changed in OB5.0.
- You must create new SCAN and DMD data by running a simulation. After this, a script needs to be run to update the original files. (refer to Appendix C of the of the WES5.0 install instructions for full instructions)

2. **FFMP Data:**

- The format of FFMP data changed in OB5.0. You must recreate all old FFMP data by using the “Create FMP Data” function under the tools menu using an OB5.0 localization. Section 11.1 of the WES5.0 install instructions details this process

3. **TextQC.config Settings**

- The textQC.config file in the nationalData directory has been configured to eliminate some QC pop-ups. If you would like to fully enable the QC checking on text products, copy over your textQC.config file from your operational AWIPS

#### 4. DMD Data in Volume Browser

- If you encounter a “No Inventory” pop-up while using the Volume Browser to display DMD data, follow these steps to fix:
  - o Load DMD from the kxxx – Graphics menu
  - o In the “Choose by ID” tool under the “Tools” menu, enter the radar (KXXX) in the blank space next to “HOME” and enter a Meso ID in the blank space next to the point A (If the “Choose by ID” tool locks up, restart D2D)

#### WES5.0 Post Install

As with all major WES releases, new localizations need to be built for older cases to display properly with the OB5.0 in WES5.0. For more information on this, see the WES5.0 installation instructions.

#### WES6.0 Development

The next WES release, WES6.0, is planned to shortly follow the release of AWIPS OB6.0 (Oct – Nov 2005).

# **1. Requirements and Overview**

WES5.0 requires a Linux operating system. For years, the NWS supported configuration has been Redhat Linux7.2 (similar to the AWIPS operational baseline) using the Gnome desktop and the Sawfish window manager. By the Fall of 2005, the supported operating system for WES will migrate to Redhat Enterprise in concert with AWIPS OB6.0. Deviating from the supported configurations has occasionally created some significant problems, such as spontaneous log outs when a simulation is started (or when swapping panes in D2D), disappearing radar data on certain zoom factors, or incorrect date resets. If you experience these uncommon problems with a different version of Linux, you may have to modify your operating system.

The WES5.0 install CD is entirely self contained and therefore does not require any previous WES versions to be installed. If a previous version of WES was installed, the installation script will replace: 1) the WDTB WES software with WES5.0, 2) the Linux version of AWIPS with OB5.0, and 3) the COTS "freeware" software (in /usr/local).

If you have not installed WES on the machine being used in the current installation and you plan on having AWIPS data stored locally on your machine, then you will have to identify a large partition on a drive to store the files. Each case study generally occupies between 3.5 and 10.0GB of disk space, so it is suggested that you have a MINIMUM 15GB of available space for both data and the WES5.0 distribution. Ideally, you will have 20GB+ set aside to handle multiple large datasets. The general convention for housing WES and WES data is to have /data and /awips be symbolic links that point to the install directory. The install script will guide you through this process. The freeware located in /usr/local is ~ 440 MB in size.

If you have not successfully installed WES before, then you will need to configure your Linux display to support AWIPS D2D. In order to run D2D, your display should be in 24-bit Truecolor mode with a resolution of 1280x1024. You can check your current display with the "xdpyinfo" command. If you find that you need to change your display settings, run Xconfigurator. If you try to run D2D in 8-bit Pseudocolor mode the process will die a horrible death.

The WES5.0 package contains both NWS AWIPS software and WES© software. The WES© software was written by CIMMS personnel at the University of Oklahoma in collaboration with the Warning Decision Training Branch and others. Limitations exist on the distribution of this package, however, NWS collaborators may obtain WES5.0 at no cost by requesting a copy from the WES distribution focal point and by agreeing to the conditions of the WES© software license agreement in the install script. To submit requests for WES5.0 please contact Timm Decker at the Warning Decision Training Branch ([timothy.b.decker@noaa.gov](mailto:timothy.b.decker@noaa.gov)) for details.

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## **2. Back Up Any Pre-existing WES Installation**

1. Log in as root.
2. **“cd /awips”**.
3. Back up the fxa directory as root:

**e.g. “cp -Rp fxa fxa.wes4.0”**

**\*Note:** To go between WES4.0 and WES5.0, it is best to use a system of symbolic links to identify the desired fxa directory. Name your two directories **fxa.wes4.0** and **fxa.wes5.0**. To use WES5.0, type:

**“ln -s /awips/fxa.wes5.0 /awips/fxa”**

This will point the fxa directory to fxa.wes5.0. To switch back to WES 4.0 type:

**“rm /awips/fxa”**

**“ln -s /awips/fxa.wes4.0 /awips/fxa”**

This will remove the old link and create a new one that points the fxa directory to fxa.wes4.0

**\*Note:** When ever you move from one WES version to another, you must also move the DRT/bin/date executable as well. If you plan on moving from WES4.0 to WES5.0 you must complete the following command:

**“mv -rp /awips/fxa.ob4.0/DRT/bin/date /awips/fxa.ob5.0/DRT/bin/date”**

## **3. Install WES5.0**

1. Print out this file before starting if possible.
2. Log in as root.
3. Identify an install directory (e.g. /usr1) on a file system with 15GB+ of free disk space

**\*Note:** If you already identified an install directory for the previous WES installation, then use this same directory. The install script will notify you of the correct directory to use if you do not enter the same directory as in the previous WES installation.

4. Load and mount the Weather Event Simulator 5.0 install CD.
5. **e.g. “mount /mnt/cdrom”** if the CD doesn't automatically mount
6. Cd to your cdrom device (eg, **“cd /mnt/cdrom”**).
7. Run **“./install-wes5.0.sh <your\_install\_directory>”**.

**\*Note:** The script will inform you about the files and directories that are going to be deleted.

**\*Note:** After agreeing to continue with the installation, wait for install-WES5.0.sh to return "install-WES5.0.sh finished" (~5-10 minutes).

8. Logout and log back in as user fxa (if no fxa account previously existed, a new account was created by the install scripts with the password fxapass).

## **4. Verify Successful Installation**

### **4.1 Verify in Enhanced Case Review**

1. D2D in OB5.0 will have problems viewing data from previous AWIPS builds, so in order to verify a successful installation, you will need to install a small test case in /data/awips from the WES5.0 install CD.

**\*Note:** You will eventually need to create new localizations for all your old cases (see Sections 6-9) before you can fully display them in D2D with the OB5.0 AWIPS in WES5.0.

**\*Note:** FFMP, SCAN, and DMD data changed format in AWIPS OB5.0. Pre-OB5.0 FFMP, SCAN, and DMD data from your archived cases will need to be recreated for use in WES 5.0 by following the instructions in Appendix C.

2. Log in as fxa (if no fxa account previously existed, a new account was created by the install scripts with the password fxapass).
3. As user fxa, load and mount the Weather Event Simulator 5.0 install CD.

**e.g. "mount /mnt/cdrom"** if the CD doesn't automatically mount

4. To install the test cases, cd to the CD device and run the wes5.0\_testcase\_install program:

**e.g. "cd /mnt/cdrom"**

**e.g. "./wes5.0\_testcase\_install"**

**\*Note:** If you have previously installed a WES test case, you may see the message "A case already exists in /data/awips/1997May01. Remove or move that case as directed".

5. Start D2D on the 1997May01 test case by running "**/awips/fxa/DRT/enhanced\_case\_review**", and:

- select 1997May01 as the case.
- Click the "OK" button
- Click "Start" on the D2D launcher

**\*Note:** The enhanced\_case\_review application starts up D2D and a few other AWIPS processes to allow programs like FFMP and SCAN to fully work outside of a simulation, in addition to standard data product viewing. The enhanced\_case\_review will work on



both original or DRT format cases, though the program cannot be run while the simulator is being run due to interference with the AWIPS processes. The “/awips/fixa/DRT/start\_awips” program is still the D2D startup script to use during a simulation. For more on enhanced case review see [Section 13](#).

**\*Note:** WarnGen will not work in enhanced\_case\_review (still need to run a simulation to use WarnGen).

6. Ensure the radar data for the first test case were loaded correctly by viewing the ktlx “Z/SRM8” radar data in D2D:

- After D2D starts up, select 32 in the “Frames” menu
- Select “WFO” as the scale
- Under the “ktlx” menu, select “All Tilts Z/SRM8”
- Hold down the “Shift” key while using the arrow keys to go forward and backward in time and up and down in space for multiple volume scans.

**\*Note:** The data in this case contains a limited number of volume scans of Z, SRM, DV, DZ and other miscellaneous data, including ~ 1.5 hours of DHR products from the ktlx radar for testing purposes. There is also ABRFC FFG data, an FFMP dataset created using the WES, and basin files for the ktlx radar in 1997May01/basin\_files (in case you are interested in practicing [FFMP data creation](#) on the test case).

**\*Note:** All mouse clicks in the WES software are single clicks.

7. Display the FFMP data for ktlx while in enhanced case review:

- Under the “SCAN” menu in D2D select “FFMP Image / Basin Table” under the “FFMP:ktlx” submenu
- Select 0.75 under the “Durations” menu and then click “Refresh D2D”
- A colored county map should appear
- Zoom into the basin with the most precipitation by selecting “OK, GREER” in the FFMP table and then click the “Ratio” column heading to rank my ratio. Select “6139” in the basins list under the “Area\_Id” column
- The screen should now be centered on area 6139 which contains the basin with the highest ratio.
- Return to the WFO scale display by selecting the “Group: OK, GREER” button
- Select the “Link to Frame” button, and step through the loop using the “>” button *in D2D*
- The table will display “N/A” for times when no accumulations exist for the selected duration period.
- Return to the last frame in the loop by selecting the “>>|” button *in D2D*
- Under the “Durations (hr)” button select 1.00 and then select “Refresh D2D”
- The table contents should change. In D2D, the colors of the counties might change, and the legend in the upper left of the main D2D pane should update to include “1.0-Hour”
- Under the “Thresh Type” button select ratio followed by “Refresh D2D” to update the county map in D2D for the ratio product

- Check the “Display Rate” box followed by “Refresh D2D” to view the rates on the D2D display
- Deselect the “Display Rate” box followed by refresh D2D to return to viewing “Thresh Type”

**\*Note:** Because FFMP data are stored differently than most AWIPS data (i.e. latest 6 hour accumulations in files with no time in the filenames), archived FFMP data won’t work directly with WES. Instead, a tool exists within WES to create FFMP data from basin files and archived datasets containing DHR files and AWIPS format flash flood guidance (FFG) (covered in [Section 11](#)).

#### 8. Display the SCAN storm cells table for ktlx:

- Under the “SCAN” menu in D2D select “Storm Cells / Site Storm Threat” under the “SCAN:ktlx” submenu
- To get rid of the SCAN table, hit the clear button in D2D.

#### 9. Display the SCAN DMD for ktlx:

- Under the “SCAN” menu in D2D select “Storm DMD Icons & Table” under the “SCAN:ktlx” submenu
- To get rid of the SCAN table, hit the clear button in D2D.

#### 10. Under the “ktlx” menu, select “ktlx Graphics”, and “Digital Mesocyclone (DMD)” to display the DMD data using the new OB5.0 D2D DMD display option.

**\*Note:** For information on enabling SCAN data for your own case data please refer to [Section 12](#).

#### 11. Shutdown D2D by selecting “Exit” under the “File” menu.

## 4.2 Verify in Simulation Mode

#### 12. Run “/awips/fxa/DRT/start\_simulator” to test a simulation on the 1997May01 data. **The case will need to be converted to DRT format** before running a simulation (see notes below). A simulation start time for this case (2346 UTC on May 01, 1997) has been set as the default in the new WES5.0 run simulation entry window along with a wessl file setting and an ffmp tar file setting (in future simulations the default will be the entry from the last time a simulation was run). If these settings are missing, select wes5.0\_test\_case\_OUN after clicking the “Load Saved Settings” button.

**\*Note:** If you have not run a simulation before, click on the “Help” menu (upper right

portion of the simulator) and “Instructions” submenu, and follow the instructions under “Convert Case to DRT Format” and “Run Simulation”. For testing this test case you will not need to reselect the default entry fields.

**\*Note:** When the simulator prompts you to restart any D2D sessions, run “/awips/fxa/DRT/start\_awips”. In the start\_awips GUI select 1997May01 as the case, and select the “Start AWIPS Text Workstation Control” checkbox.

13. Verify in the WFO scale that a ktlx “All Tilts Z/SRM8” all tilts radar product updates (usually once per minute).

**\*Note:** Every 15 seconds the main WES window will update with data being processed, and updates in D2D should happen shortly after the WES window lists the files being processed.

**\*Note:** If the storm motion file doesn’t exist (as happens in a newly created localization) or if it becomes too old, a D2D popup warning message will appear when you first load the product. You have to create a storm motion with the Radar Display Controls for the motion to be updated correctly. To change the storm motion:

- toggle to the “SRM 8” product by selecting the “.” key on the numeric keypad.
- under the “Tools” menu load “Radar Display Controls”
- enter 270 degrees at 30 kts as the SRM Custom Storm Motion
- trigger the display to update the new storm motion in the upper left part of the main pane by zooming in on the storm or moving the center of the display

14. Verify that a WESSL popup window appears each minute. Once the WESSL popups appear you can use the forward and backward buttons on the “WESSL Station Log” window to review previous WESSL popups.

15. Test creating a warning with WarnGen in D2D:

- clear the D2D pane and select a WFO scale map
- with no product loaded click on the WarnGen button in the upper right part of D2D
- move the "Drag me to storm" icon to somewhere in the center of the map
- select Tornado for warning type in the WarnGen popup window
- click on the "create text" button on WarnGen popup window
- click “Acknowledge” to dismiss the ETN message that happens for the first warning
- a text window should appear if the text monitor was started with D2D
- click “OK” if a template warning appears
- click "Enter" to modify the warning
- Replace the line at the bottom containing “!\*\*\*NAME/INITIALS\*\*\*!” with your initials
- click the "Send" button and a popup message should appear
- click "Go Ahead" when the popup window messages appear.
- in a new pane on WFO scale load “Local Warnings” from the NCEP/Hydro menu in D2D

**\*Note:** If you load a new warning polygon over old product data you need to wait about a minute for the polygon to be displayed or you may need to select “Forced” for the time

matching in the upper left part of D2D for the time matching to work.

16. In a shell window outside of D2D, list out the contents of the /data/awips/1997May01/flatText/OKCTOROKC directory containing the tornado warning just created (e.g. “ls /data/awips/1997May01/flatText/OKCTOROKC/”), and view the contents of the warning. The WarnGen products created during a simulation will be purged from this flatText directory when a new simulation is started. Essentially the files in the flatText directory are the replacement for storage in Informix. Non-WarnGen created PIL products can be included in a simulation through this flatText directory (OKCSAW1 for an SPC watch, for example) if:

- the directory is created with the appropriate PIL name in the \$FXA\_DATA/flatText directory,
- the file is given a standard AWIPS filename convention, including seconds (e.g. 19970501\_210507),
- and the data is put into the case before converting to DRT format.

In the current version, any “non-WarnGen” products added by the user using the instructions above are just made visible at the appropriate time, and there is no explicit notification with loops updating the products.

17. After verifying the install was successful, shut down D2D and exit the simulator. You may consider putting icons on the desktop to start the start\_simulator, start\_awips, and enhanced\_case\_review scripts.

**\*Note:** FFMP, SCAN and DMD data are unique in a simulation. These products are created every volume scan from the input files. These products require their input files to exist in the case in order to work successfully during a simulation.

## **5. CREATE A NEW WESSL SCRIPT FOR THE 1997May01 TEST CASE**

1. WES Scripting Language (WESSL) provides the ability to release non-awips data within a simulation using a scripting language. The simulation developer can create a new script either from scratch or by modifying an existing wessl file. WESSL 5.0 was installed in /awips/fxa/DRT/wessl, and instructions/reference materials can be found through browsing the /awips/fxa/DRT/wessl/docs/index.html file. This section will focus on creating a new wessl file for the 1997May01 test case through modifying an existing wessl file. If you have already done this step in previous WES installations, then you may wish to skip to Section 6. Improvements in WESSL 5.0 include the ability to use any type of image format and the addition of a scrolltext feature to keep long text strings from disappearing off the bottom of the monitor.
2. Run /awips/fxa/DRT/wessl/wessl/builder.tcl
3. Under the "File" menu select "Open".
4. Use the directory navigator to navigate to the /data/awips/1997May01/wessl directory, and click on "oun\_5-1-97.wessl". Then click the "Open" button.
5. Under the "File" menu select "Save As". Then type in a new filename for the new WESSL script (e.g. newtest.wessl), and click on "Save".

**\*Note:** Files must be saved with the .wessl extension for them to be used in WES.

6. In the new WESSL script try modifying the "Simulation Has Started" text. With the blinking cursor on the modified line, click on the "Run" button in the upper right part of the interface to preview the command.
7. Now try modifying the "23:47" line by changing the map latitude from "34.91" to "44.91", and delete "OUN". With the blinking cursor on the modified line, click on the "Run" button in the upper right part of the builder to preview the command. If you made both modifications, a new map will appear over the ABR CWA.
8. In builder.tcl move the blinking cursor over the command line containing "23:46". Click on the "Run" button in the upper right to step through each WESSL command until you reach the last command entry with the stop time of the simulation.
9. Once you have stepped through the wessl commands, select "Save" under the "File" menu and "Build" under the "File" menu.
10. When the builder is done building the script, list the new files created in your "wessl" directory (e.g. ls /data/awips/1997May01/wessl).
11. Start a simulation in WES using the 1997May01 test case, and select the new WESSL file to run (e.g. newtest.wessl) next to the "WESSL Script (Optional)" label in the entry box.

**\*Note:** You do not need to select any WESSL Case Flags in the WES GUI unless you want

to run only parts of the WESSL script.

12. WESSL will launch the commands at the specified times during the simulation. The WESSL Station Log will allow the user to page through the WESSL pop ups. Building a new wessl script in a new case will be covered in Section 10.

## **6. Customize AWIPS OB5.0 in WES5.0**

### **6.1 Migrate Local AWIPS Customizations to the WEScustomization Directory in WES5.0**

1. These customization instructions were designed to transfer AWIPS customization files from a real-time AWIPS with Build OB5.0 to WES5.0. If you don't have access to AWIPS customizations, then skip to Section 9.
2. The concept of migrating customizations to WES5.0 is to transfer all your important customization files from your local AWIPS to a central location on WES (WEScustomization directory) that will not be removed by future WES installations. Section 6 needs to be completed with help from the local AWIPS focal point who understands how the local AWIPS has been customized. To illustrate the following commands we will use the Chicago office, LOT, as the local CWA.
3. Log in to your WES machine as user fxa.
4. Identify a method to transfer files from your real-time AWIPS to your WES machine (floppy, cd, ftp, etc).
5. If you have previously customized your WES using previous WES customization instructions, you will need to back up the customFiles, userPrefs, global-LLL-files, storagefiles, mainConfig, and the XXX directory (eg. LOT) in the /awips/fxa/WEScustomizations directory before you update WES5.0 with your new OB5.0 customizations.

**e.g. “cd /awips/fxa/WEScustomization/”**

**e.g. “mv customFiles customFiles.ob4.0”**

**e.g. “mv userPrefs userPrefs.ob4.0”**

**e.g. “mv global-LLL-files global-LLL-files.ob4.0”**

**e.g. “mv storagefiles storagefiles.ob4.0”**

**e.g. “mv mainConfig mainConfig.ob4.0”**

**e.g. “mv LOT LOT.ob4.0”**

6. Copy the /data/fxa/customFiles directory on your DS into the /awips/fxa/WEScustomization directory on the WES.

**e.g. “cp -R customFiles /awips/fxa/WEScustomization” from cd**

7. Copy the /data/fxa/userPrefs directory on your DS into the /awips/fxa/WEScustomization directory on the WES machine.

**e.g. “cp -R userPrefs /awips/fxa/WEScustomization”** from cd

8. Copy the /awips/fxa/data/localization/XXX directory (where XXX is your localization ID) on your LX1 workstation to the /awips/fxa/WEScustomization directory on your WES machine. The directory on the LX1 machine should contain the most up to date localization files which were used for the installation of OB5.0

**e.g. “cp -R LOT /awips/fxa/WEScustomization”** from cd

9. Copy the following files from your DS to the /awips/fxa/WEScustomization/storagefiles directory:

/awips/fxa/data/localization/nationalData/virtualFieldTable.txt  
/awips/fxa/data/localization/nationalData/gridPlaneTable.txt  
/awips/fxa/data/colorMaps.nc  
/awips/fxa/data/fxa-users  
/data/fxa/workFiles/customColorMaps.nc

10. Change the permissions on the colorMaps.nc file to “-rw-rw-rw” if they aren’t set this way:

**e.g. “chmod 666 /awips/fxa/WEScustomization/storagefiles/colorMaps.nc”**

11. Copy the following files from your WS to the /awips/fxa/WEScustomization/storagefiles directory:

/awips/fxa/data/vb/browser\*.txt (not needed if browser\*.txt files are already in the customFiles directory).

12. Copy a LINUX VERSION of any specialized map files (\*.bcx found in the /awips/fxa/data/localizationDataSets/XXX directory) into the /awips/fxa/WEScustomization/storagefiles directory.
13. Copy any other relevant local customized files to the /awips/fxa/WEScustomization/storagefiles directory.



## 6.2 Migrate the Local AWIPS OB5.0 Customizations to the New OB5.0 with WES5.0

1. The following instructions assume you have copied over your AWIPS customizations to the WEScustomization directory as instructed in section 6.1
2. Identify a local case with your CWA to create a localization for in /data/awips. To illustrate the following commands, we will use a 2002Jun12 case from the LOT CWA as an example.
3. If you have already applied steps 4, 5, 6, and 7 in a previous WES customization using WES customization instructions, you can skip steps 4, 5, 6, and 7.
4. As user fxa, backup your customFiles and userPrefs directories in your case:

**e.g. “cd /data/awips/2002Jun12”**  
**“mv customFiles customFiles.orig”**  
**“mv userPrefs userPrefs.orig”**

5. Make a customFiles symbolic link in your data case that points to the customFiles directory in WEScustomization:

**e.g. “ln -s /awips/fxa/WEScustomization/customFiles**  
**/data/awips/2002Jun12/customFiles”**

6. Make a userPrefs symbolic link in your data case that points to the userPrefs directory in WEScustomization:

**e.g. “ln -s /awips/fxa/WEScustomization/userPrefs**  
**/data/awips/2002Jun12/userPrefs”**

7. Cd to the data case and list out the contents of the links to ensure the links resolve the appropriate directories and files in /awips/fxa/WEScustomization.

**e.g. “cd /data/awips/2002Jun12”**  
**“ls customFiles”**  
**“ls userPrefs”**

8. **“cd /awips/fxa/data/localization”** and backup your local CWA XXX directory:

**e.g. “mv LOT LOT.orig”**

9. While in the same directory as step 8 (/awips/fxa/data/localization), make an XXX symbolic link (where XXX is your local CWA) that points to the pre-localization directory in WEScustomization:

**e.g. “ln -s /awips/fxa/WEScustomization/LOT LOT”**

10. List out the contents of the XXX link in /awips/fxa/data/localization/ created in step 9 to ensure the link resolves the appropriate directories and files in /awips/fxa/WEScustomization.

**e.g. “ls /awips/fxa/data/localization/LOT”**

11. Before copying any of the following files into the WES AWIPS, make a backup version of the file you are copying over.

**“cd /awips/fxa/WEScustomization/storagefiles”, and copy:**

file:

virtualFieldTable.txt

gridPlaneTable.txt

browser\*.txt

fxa-users

customColorMaps.nc

to location:

/awips/fxa/data/localization/nationalData

/awips/fxa/data/localization/nationalData

/awips/fxa/data/vb (not needed if in customFiles)

/awips/fxa/data

/data/awips/{ \$case\_name }/workFiles

where { \$case\_name } refers to your case (eg. 2002Jun12).

12. Copy any other relevant files in the storagefiles directory to the appropriate AWIPS directory.
13. Now you are ready to create a localization for your local case.

## **7. Create a New Localization for Your Local Case**

1. A new AWIPS localization usually needs to be created for every major AWIPS build upgrade, or when you create a case from scratch. If you have not customized your WES (Section 6), the localization you create will contain all the AWIPS default settings for color tables, templates, etc.

**\*Note:** If you try to use an old localization on a newer version of AWIPS associated with a new WES install, D2D will sometimes hang on the startup and some products may not be displayable.

2. Cd to your localizationDataSets directory in your local case.

**e.g. “cd /data/awips/2002Jun12/localizationDataSets”**

3. Move any old localization you are going to recreate.

**e.g. “mv LOT LOT.ob4.0”**

4. “cd /awips/fxa/data/localization/scripts” and run mainScript.csh with your localization ID:

**e.g. “mainScript.csh LOT LOT”**

**\*Note:** You will be prompted to enter your case name and verify it is correct.

5. When mainScript.csh is done, “cd /awips/fxa/WEScustomization/storagefiles”.
6. Copy any colorMaps.nc and \*.bcx files from the /awips/fxa/WEScustomization/storagefiles directory to your new localization in /data/awips/{ \$case\_name }/localizationDataSets/XXX, where { \$case\_name } is your local case (e.g. 2002Jun12) and XXX is your localization (e.g. LOT).
7. Start D2D with the new localization, and verify your localization was successful and any customizations took effect. Once you have verified your localization was successful, then try running a simulation to test creating a warning with WarnGen.
8. To update other local cases with the new customizations, first create the links in the new case that point to the WEScustomization subdirectories (*ie. steps 4-7 in Section 6.2*) if they haven’t been created. Then, back up the customColorMaps.nc file and XXX localization in the new case (we will now use 2002Jun12 as the old local case and 2003Feb01 as the new local case from LOT in the following command examples):

**eg. “cd /data/awips/2003Feb01/workFiles”**

```
“mv customColorMaps.nc customColorMaps.nc.ob4.0”  
“cd /data/awips/2003Feb01/localizationDataSets”  
“mv LOT LOT.ob4.0”
```

9. Then copy the customColorMaps.nc and new XXX localization into the new local case:

```
eg. “cp /data/awips/2002Jun12/workFiles/customColorMaps.nc  
    /data/awips/2003Feb01/workFiles”
```

```
“cp -R /data/awips/2002Jun12/localizationDataSets/LOT  
    /data/awips/2003Feb01/localizationDataSets”
```

10. If you would like to be able to create localizations for other CWAs that contain your WarnGen templates, color tables, etc, and then complete Section 8.

## **8. Link Local CWA Customizations to All Other CWAs**

1. This section provides instructions on how to create localizations for other CWAs that will contain your local WarnGen templates, color tables, etc, so you can train like you fight on cases outside your CWA. In the following example we will use LOT as the local CWA that will be customizing the BMX localization for the 1998Apr08 Birmingham, AL case in /data/awips/1998Apr08.
2. The approach to making customized localizations other than your CWA involves linking all relevant local customization files to all the other CWAs before running mainScript.csh.
3. Log in as user fxa, and choose a case (e.g. 1998Apr08) to make a new localization for (e.g. BMX) that is not your local CWA.
4. If you have already made a customFiles symbolic link and a userPrefs symbolic link in this data case (steps 4, 5, 6, and 7 from Section 6.2) that point to the appropriate directories in WEScustomization, then skip steps 5, 6, and 7.
5. Backup your customFiles, procs, and userPrefs directory in your case:

**e.g. “cd /data/awips/1998Apr08”  
“mv customFiles customFiles.orig”  
“mv userPrefs userPrefs.orig”**

6. Make a customFiles symbolic link in your data case that points to the customFiles directory in WEScustomization; make a userPrefs symbolic link in your data case that points to the userPrefs directory in WEScustomization:

**eg. “ln -s /awips/fxa/WEScustomization/customFiles  
/data/awips/1998Apr08/customFiles”  
“ln -s /awips/fxa/WEScustomization/userPrefs /data/awips/1998Apr08/userPrefs”**

7. Cd to the data case, and list out the contents of the links to ensure the links resolve the appropriate directories and files in /awips/fxa/WEScustomization.

**e.g. “cd /data/awips/1998Apr08”  
“ls customFiles”  
“ls userPrefs”**

8. Copy the XXX-\* files (e.g. LOT-\*) in your customFiles directory that do not contain local geographic information to the global-LLL-files directory:

**“cd /awips/fxa/WEScustomization/customFiles”.  
eg. “cp LOT-wwaConfig.template /awips/fxa/WEScustomization/global-LLL-files”**

**\*Note:** Do not copy files to this directory that have geographic information unique to your CWA like XXX-radarsInUse.txt, XXX-radarsOnMenu.txt, XXX-mainConfig.txt, XXXdialRadars.txt, and XXX-mosaicInfo.txt. Try doing a more command on each XXX-\* file and watch for local radar information or local/surrounding CWA information to check for files not to copy. See [Appendix A](#) for an example of the file list in global-LLL-files.

**\*Note:** Any files in customFiles without the XXX- prefix will be utilized in the new localization directly from the customFiles directory.

9. Check the customFiles directory for files without an XXX- prefix that contain local geographic information unique to your CWA like radarsInUse.txt, radarsOnMenu.txt, mainConfig.txt, dialRadars.txt, and mosaicInfo.txt. If you find such files *in this directory*, then rename them with an XXX- prefix (e.g. mv dialRadars.txt LOT-dialRadars.txt). See [Appendix A](#) for an example of the file list in customFiles.
10. “**cd /awips/fxa/WEScustomization/XXX**” where XXX is your localization ID (e.g. LOT).
11. Copy any XXX-\* files and generic files (no XXX- prefix) that do not contain local geographic information to your /awips/fxa/WEScustomization/global-LLL-files directory.

**eg. “cp LOT-wwaConfig.template /awips/fxa/WEScustomization/global-LLL-files”**

**\*Note:** Do not copy files to this directory that have geographic information unique to your CWA like dialRadars.txt, XXX-dialRadars.txt, XXX-radarsInUse.txt, XXXradarsOnMenu.txt, XXX-mainConfig.txt, XXX-mosaicInfo.txt, etc. Try doing a “more” command on each XXX-\* file and watch for local radar information or local/surrounding CWA information to check for files not to copy. See Appendix A for an example of the file list in global-LLL-files and in the /awips/fxa/WEScustomization/XXX directory.

12. Run “**/awips/fxa/WEScustomization/scripts/linkLLLfiles.csh**” to put symbolic links in every /awips/fxa/data/localization/LLL directory that point to each file in /awips/fxa/WEScustomizations/global-LLL-files.

**\*Note:** When you want to make changes to global-LLL-files, modify the files in the global-LLL-files directory, and run the unlinkLLLfiles.csh script followed by linkLLLfiles.csh.

13. If you have generic directives (e.g. @@@RADAR\_Z 1000) in your XXX-mainConfig.txt file you will need to create a new file in step 15 that will be accessed for localizing other CWAs (this is not a bad thing).
14. Copy your XXX-mainConfig.txt file from /awips/fxa/WEScustomization/XXX to the file /awips/fxa/WEScustomization/mainConfig/genericmainConfig.txt.

**e.g. “cp /awips/fxa/WEScustomization/LOT/LOT-mainConfig.txt  
/awips/fxa/WEScustomization/mainConfig/genericmainConfig.txt”**

15. Remove any local geographic directives from the genericmainConfig.txt file, leaving only

generic directives (e.g. leave only entries like “@@@RADAR\_Z 1000” in the genericmainConfig.txt file). Do not add entries if they do not exist in your original files. See [Appendix A](#) for an example of the genericmainConfig.txt file.

16. Run “**/awips/fxa/WEScustomization/scripts/modifymainConfig.csh**” to create a new XXX-mainConfig.txt file in each pre-localization directory in /awips/fxa/data/localization.

**\*Note:** If in the future you want to return the XXX-mainConfig.txt files to the original in each of the pre-localization directories, run the unmodifymainConfig.csh program in the same directory.

17. The next section (Section 9) will cover how to make the customizations in Section 8 take effect.

## 9. Create a New Localization For a Non-local Case

1. A new AWIPS localization usually needs to be created for every major AWIPS build, or when you create a case from scratch. If you have not customized your WES (Section 6 and Section 8), the localization you create will contain all the AWIPS default settings for color tables, templates, etc.

**\*Note:** If you try to use an old localization on a newer version of AWIPS associated with a new WES install, D2D might hang on startup and some products might not be displayable

2. Before running mainScript.csh, back up the localization if it exists:

**e.g. “cd /data/awips/1998Apr08/localizationDataSets”  
“mv BMX BMX.ob4.0”**

3. **“cd /awips/fxa/data/localization/scripts”** and run mainScript.csh on the new localization you are about to create.

**e.g. “mainScript.csh BMX BMX”**

**\*Note:** You will be prompted to enter your case name and verify it is correct.

4. If you are customizing your WES from your AWIPS, then backup the customColorMaps.nc file in your case, and copy the customColorMaps.nc file from the storagefiles directory into the workFiles directory in your case. If you are not customizing your WES from your AWIPS, then skip steps 4-6.

**e.g. “cd /data/awips/1998Apr08/workFiles”  
e.g. “mv customColorMaps.nc customColorMaps.nc.orig”  
e.g. “cp /awips/fxa/WEScustomization/storagefiles/customColorMaps.nc .”**

5. After mainScript is done, **“cd /awips/fxa/WEScustomization/storagefiles”**.
6. Copy any colorMaps.nc and \*.bcx files from the /awips/fxa/WEScustomization/storagefiles directory to your new localization in /data/awips/{ \$case\_name }/localizationDataSets/XXX, where { \$case\_name } is the new case (e.g. 1998Apr08) and XXX is the new localization (e.g. BMX).
7. Start D2D with the new localization to verify your localization works and any customizations were successfully applied. If your localization was successful then try running a simulation to test creating a warning with WarnGen.



8. Once you have verified all your customizations took effect, you can easily create a new localization for any CWA in this case (e.g. FFC) by running mainScript.csh (step 3 with FFC for example) and following steps 5 and 6 (using FFC for example).

**e.g. “mainScript.csh FFC FFC”**

9. To create a new localization *with no customization changes (ie. you skipped Sections 6 and 8)* on any new case (e.g. /data/awips/1998May31 Albany, NY event at ALY), all you need to do is back up the old localization (step 2 using ALY) and run mainScript.csh (step 3 using ALY).
10. To create a new localization *with customization changes (ie. you completed Sections 6 and 8)* on another case outside your CWA (e.g. /data/awips/1998May31 Albany, NY event at ALY), now all you need to do is back up the customization directories in the case (step 5 in Section 8 using /data/awips/1998May31), make symbolic links in the data case that point to the appropriate directories in WEScustomization (step 6 in Section 8 using /data/awips/1998May31), verify the links (step 7 in Section 8 using /data/awips/1998May31), back up the old localization (step 2 in Section 9 using ALY), run mainScript.csh (step 3 in Section 9 using ALY), and copy files into the new localization (steps 4, 5, and 6 in Section 9).

## 10. Create a New WESSL Script for A Case

1. This section focuses on using the test case wessl file as a template to build a new wessl file for a new case. This section assumes a new localization has already been built in Section 7 or Section 9.
2. Make a “wessl” directory for your new WESSL source files in your data case if it doesn't exist (e.g. mkdir /data/awips/1998Apr08/wessl). The “wessl” directory must be all lowercase letters.
3. Run /awips/fxa/DRT/wessl/wessl/builder.tcl.
4. Under the "File" menu select "Open".
5. Use the directory navigator to navigate to the /data/awips/1997May01/wessl directory, and click on "oun\_5-1-97.wessl". Then click the "Open" button.
6. Under the "File" menu select "Save As". Then navigate to the new “wessl” source file directory created in step 2 above (i.e. /data/awips/1998Apr08/wessl). Now type in a new filename for the new WESSL script (e.g. bmx\_4-8-98.wessl), and click on "Save".

**\*Note:** Files must be saved with the .wessl extension for them to eventually be selected in WES.

7. In the new WESSL script try changing the time and date in the first line (23:46 05/01/97) to the start time and date of your case. Also modify the "Simulation Has Started" text. With the blinking cursor on the modified line, click on the "Run" button in the upper right part of the interface to preview the command.
8. Modify the time in the “23:47” line, delete OUN, and try using the Lat/Lon readout in D2D on your data case to put in appropriate values for your data case (to find lat-lon values right click on a map background in D2D to select “Lat/Lon Readout” and use the left mouse button to read out a lat-lon value on a map). With the blinking cursor on the modified line, click on the "Run" button in the upper right part of the interface to preview the command.
9. In builder.tcl move the blinking cursor over the command line containing the start time of your new simulation. Click on the "Run" button in the upper right to step through each WESSL command until you reach the last command entry with the stop time of the simulation.
10. Once you have stepped through the wessl commands, select “Save” under the “File” menu and "Build" under the "File" menu.
11. When the builder is done building the script, look at the new files created in your “wessl” directory (e.g. ls /data/awips/1998Apr08/wessl).
12. Start a simulation in WES, and select the new WESSL file to run (e.g. bmx\_4-8-98.wessl) next to the "WESSL Script (Optional)" label in the entry box.

**\*Note:** that you do not need to select any WESSL Case Flags unless you want to run only parts of the WESSL script.

## **11. Preparing a Case for FFMP**

1. Because FFMP data are stored differently than most AWIPS data (i.e. latest 6 hour accumulations in files with no time in the filenames), archived FFMP data won't work directly with WES. Instead, a tool exists within WES to create FFMP data from archived datasets. Before WES can be used to create FFMP data, the case needs to be prepared for FFMP. These instructions will work for local cases or cases from other CWAs.
2. To create FFMP data from an archived case requires the following:
  - a. basin files for each radar running FFMP (stored in /awips/fxa/data/localization/nationalData)
  - b. HRAP grid digital RFC flash flood guidance (stored in <your\_case>/img/SBN/netCDF/HRAP/FFG/XXRFC/Yhr where XXRFC is the RFC for your area and Yhr is 1hr, 3hr, and 6hr)
  - c. DHR files for each radar running FFMP stored in <your\_case>/radar/xxxx/DHR/layer0/res1/level256 (where xxxx is the radar name)
  - d. Directories: <your\_case>/tstorm, <your\_case>/radar/xxxx/tstorm, <your\_case>/radar/xxxx/ffmp (where xxxx is the radar name), and <your\_case>/radar/xxxx/ffmp/lookupFiles
  - e. A localization run with the “-scan” switch

**\*Note:** Failure to include all of the above elements will result in bad FFMP data.

**\*Note:** The FFMP directory structure changed in OB4, so all FFMP data sets created with WES before WES4.0 will require the files in each radar's ffmp directory to be copied to a “lookupFiles” subdirectory, followed by relocalizing with the scan switch:

e.g. “mkdir /data/awips/1997May01/radar/ktlx/ffmp/lookupFiles”

“cp /data/awips/1997May01/radar/ktlx/ffmp/\*  
/data/awips/1997May01/radar/ktlx/ffmp/lookupFiles”

“mainScript.csh -scan OUN OUN”

3. The first step in preparing your case for FFMP is to copy the basin files for each radar onto your WES. For your local cases, you should already have basin files on your AWIPS. Basin files from other radars will have to be retrieved from other NWS offices or the AWIPS

NOAA1 server.

4. On your LX workstation copy the basin files to the WES (e.g. copy files to a tmp directory and burn a cd):

**e.g. “cd /awips/fxa/data/localization/nationalData”**

**e.g. “cp ktlx\_\* /data/fxalocal/tmp” and burn a cd**

5. As outlined in Section 6, copy these files to the /awips/fxa/WEScustomization/storagefiles directory to preserve the files on the machine in the WES upgrades

**e.g. “cp /mnt/cdrom/ktlx\_\* /awips/fxa/WEScustomization/storagefiles”**

6. Copy the basin files to the /awips/fxa/data/localization/nationalData directory

**e.g. “cp /awips/fxa/WEScustomization/storagefiles/ktlx\_\*  
/awips/fxa/data/localization/nationalData”**

7. After copying the basin files to the WES machine, you need to ensure the FFG data exists in the case.

**e.g. “ls <your\_case>/img/SBN/netCDF/HRAP/FFG/XXRFC/Yhr where XXRFC is the RFC for your area and Yhr is 1hr, 3hr, and 6hr)**

8. Ideally you will want to always include FFG data in your regular local archive, since there is no easy-to-access archive source for the digital FFG data. If you are trying to recreate old FFG files, you can check with the COMET case study group to see if they have access to the data (note that digital FFG data in general is not available prior to 1999 because that is when it was distributed via the SBN). If you can access some digital FFG data that is somewhat representative for your case there is a way to configure that to work with FFMP (see [Appendix B](#)), though not having the exact FFG data for that case can significantly change the way FFMP characterizes events.

9. After ensuring FFG data exists in your case, ensure DHR data exists for each radar to run FFMP.

**e.g. “ls <your\_case>/radar/xxxx/DHR/layer0/res1/level256” (where xxxx is the radar name)**

10. Ideally you will want to always include the DHR product on your RPS list and in your local archive. If you wish to create DHR data from archived level II data, you can try using Paul Jendrowski’s programs available from the SOO/STRC website.
11. After ensuring DHR files exist in the case, ensure the required directories exist.

e.g. “ls <your\_case>/tstorm” “ls <your\_case>/radar/xxxx/tstorm” (where xxxx is the radar name)

“ls <your\_case>/radar/xxxx/ffmp” (where xxxx is the radar name)

“ls <your\_case>/radar/xxxx/ffmp/lookupFiles” (where xxxx is the radar name)

12. If the directories do not exist in your case, copy a version of these directories over from a case that has them, or your local AWIPS (or create them manually as a last resort).  
Recreating a localization (step 13) should update all the files needed for the particular case.
13. After ensuring the case structure is ready for FFMP, create a new localization for your case running mainScript.csh.

e.g. mainScript.csh OUN OUN

14. Once the localization is done, relocalize with the scan switch to create all the needed FFMP configuration files.

e.g. mainScript.csh –scan OUN OUN

15. Start up D2D and check the SCAN menu to verify the FFMP menus exist for the radars you have configured FFMP to run. If the radar isn’t listed, you will need to include the desired radar in XXX-radarsInUse.txt and XXX-radarsOnMenu.txt files in your customFiles directory in the case (where XXX is your localization id for the case).
16. While in D2D, select the “FF” button on the upper right, and ensure a reasonable “FFG Expiration Time” exists (e.g. 96 hours), and click “Save”. If the “FFG Expiration Time” is blank, FFMP will not be able to access the FFG data needed to create FFMP data.
17. Under the “Maps” and “FFMP Basins” submenu on the D2D, select the “kxxx Small Stream Basins” map, where kxxx is the radar name. Note you must be in State or Local scale to display this map. If all the needed basin files were included in nationalData, and the localization was rerun, the high resolution basin maps should display.

## 11.1 Creating an FFMP Tar File for WES

**\*Note: The FFMP data format has changed in OB5, therefore all FFMP data created in WES 4.0 or earlier versions will need to be recreated.**

1. Once the case is prepared for FFMP creation (Section 11), the WES can be used to create FFMP data. The case can be in original format or DRT format when creating the data. The FFMP data is stored as tar files that are subsequently selected in the simulation entry window (e.g. 19970507\_2346.tar.gz).
2. The time of the ffmp tar file represents *the end* of the ffmp accumulations. For example, a

19970507\_2346.tar.gz file contains data up to 2346Z. During a simulation the FFMPprocessor will create new data each volume scan to add to the existing accumulations.

**\*Note:** To browse FFMP data in a static mode, you can create an ffmp tar file for the end of the time period of interest. If you are running FFMP data in a simulation you will want to create data up to the start time of the simulation, and the FFMPprocessor will add to the accumulations each volume scan during the simulation.

3. Start up WES5.0 using “/awips/fxa/DRT/start\_simulator”, and click on the “Tools” button, followed by the “Create FFMP Dataset” button.
4. Select the case (FXA\_DATA), localization (FXA\_LOCAL\_SITE), and start time of your planned simulation (FFMP start time), and click the “OK” button. While you are waiting for FFMP data to be created, you may watch the progress of the FFMP processor in the shell window used to launch the simulator.
5. FFMP data will be created for the 96 DHR files leading up to the start of the simulation (size of the FFMP storage). It does this by feeding a subset of the DHR files to the FFMPprocessor and other decoders started during the data generation. If you have multiple radars and many DHR files, the process can take 5-10 minutes. The WES has been programmed to warn the user if some of the requirements in Section 11 are not met.

**\*Note:** It is very important not to kill the simulator while it is creating FFMP data. If you kill the simulator while the FFMP data is being created, the ...DHR/layer0/res1/level256.saved directory will need to be renamed to “level256” after removing “level256” and “level256ffmp”. Be careful not to delete your original data directory.

6. Following a successful FFMP data creation, a tar file is created for each radars ffmp directory with the time stamp entered in the FFMP start time. The tar files are subsequently selected from the WES main simulation entry window, and they reside in <your\_case>/radar/xxxx/ffmptars (where xxxx is the radar).
7. Verify the FFMP data was created correctly by starting up D2D and loading the FFMP table for one of the valid radars. If there is no FFMP data in your case, then review any error messages and contact WES support. Note that the FFMP table won't function entirely until a simulation is started (explained in Section 4).
8. After the data have been verified to exist, the FFMP tar file needs to be selected in the main simulation entry window.
9. In the main “Run Simulation” entry window next to “FFMP File and Radars”, click on the “Select” button, and select a radar to be used.
10. A list of tar files should pop up. Select the desired tar file time, and click “OK”.
11. The tar file selected should appear in the main simulation entry window along with a list of radars that have tar files at that time. Selecting one tar file from one radar will grab all the available tar files from other radars. Click “OK” to proceed with the simulation startup.

12. After the links are created for the simulation start time, each radar's ffmp directory is deleted, and a new directory is untarred into its place with the data valid up to the start time.
13. Note that most of the AWIPS decoders are also started in this step.
14. Before clicking on "Run Simulation" in the Verification Entry window, you may start D2D and view the new FFMP datasets with full FFMP table functionality.
15. If you wish to run a simulation, you may click "Run Simulation", and you will need to restart D2D. The FFMPprocessor is then started for simulation use, and each time the DHR files are processed by WES, a notification is sent to the FFMPprocessor and other AWIPS processes to create new FFMP data and update the table as in real time.

## 12. Enabling SCAN Data

There are a few steps that need to be followed to get SCAN data working on an archived case.

1. The /data/awips/<your\_casename>/tstorm directory must be copied from /data/fxa/tstorm on your real-time AWIPS or from another case from the same AWIPS build in the WES. This tstorm directory contains general information for both SCAN and FFMP. Note the data contained in this tstorm directory is much different than that in the tstorm subdirectory under each individual radar directory.
2. The SCAN SCIT data are archived in numerous subdirectories under each radars tstorm directory (e.g. /data/fxa/radar/ktlx/tstorm). This data can be archived from a real-time AWIPS and played back in WES.
3. The data used in the SCAN DMD display is archived from each radar's DMD directory (e.g. /data/fxa/radar/DMD...including both the elev\* and netcdf subdirectories). The files under elev\* are the raw files, which are used in a simulation, and the netcdf files are the files used for display in D2D and SCAN.
4. After the tstorm directories and data are copied over, the localization needs to be rerun using the "-scan" switch (e.g. mainScript.csh -scan OUN OUN). Now you can view SCAN data for case review and simulations.
5. If you do not have SCAN SCIT data archived from an event, you can create SCAN SCIT data by running a regular WES simulation and you have all the SCAN SCIT inputs (1km CZ, 1km 0.5 degree Z, STI, VIL, TVS, and M).

**\*Note:** During a simulation, SCAN SCIT files, DMD data and FFMP data are created from the raw input files for each volume scan.

6. If you do not have the raw DMD files (/data/awips/1997May01/radar/ktlx/DMD/elev\* directories), then DMD will not work in simulation mode. The DMD netcdf files are created from the raw files during a simulation.



## **13. Enhanced Case Review**

Starting in WES5.0, there is a new version of the start\_awips program called enhanced\_case\_review. This new version allows for more functionality in reviewing FFMP and SCAN data outside of a simulation (i.e. in case review). enhanced\_case\_review works on both original and DRT format data. This script starts up the AWIPS CommsRouter and notificationServer along with the D2D, so that the FFMP/SCAN tables can dynamically work with the D2D to redraw the display. For example, if you change the FFMP table "Thresh Type" from "precip" to "ratio" and select "Refresh D2D", the D2D will now update. Previously you had to run a simulation for this functionality to work.

1. To launch enhanced\_case\_review, run /awips/fxa/DRT/enhanced\_case\_review, or type enhanced\_case\_review as user fxa (it is in the path).
2. The enhanced\_case\_review application cannot be run during a simulation because the AWIPS decoders will conflict. There are popup warning messages if you try to do this. Please use start\_awips to launch a D2D during a simulation.
3. If you would like to launch a second D2D session with enhanced case review, you can run another enhanced\_case\_review. The enhanced\_case\_review script will detect if a previous version is running, and it will only start a D2D session without starting a second set of AWIPS decoders.
4. When enhanced\_case\_review is shut down, the decoders are killed, so that won't impact subsequent D2D sessions or simulations. In the event that enhanced\_case\_review was shut down uncleanly and there are leftover processes, the enhanced\_case\_review and start\_simulator programs will notify the user of this bad condition, and recommend the processes be killed.

## **Appendix A**

Example of files in WEScustomization subdirectories for a localization with the id XXX are given below. Note that your file list will vary due to local differences in customization practices.

### **1./awips/fxa/WEScustomization/global-LLL-files**

XXX-acqPatternAddOns.txt XXX-  
backgroundMenus.txt XXX-  
commonLdadMenus.txt XXX-  
localDataKeys.txt XXX-  
localDepictKeys.txt XXX-  
localProductButtons.txt XXX-  
radarDataMenus.template XXX-  
sls\_county\_block.preTemplate XXX-  
wwaConfig.template XXX-  
wwaDefaults.txt XXX-  
wwa\_ffw.preWWA XXX-  
wwa\_flflood\_sta.preWWA XXX-  
wwa\_svr2.preWWA XXX-  
wwa\_svr.preWWA XXX-  
wwa\_svrwx\_sta.preWWA XXX-  
wwa\_tor.preWWA XXX-  
wwa\_wrksls.preWWA XXX-  
wwa\_wrksls.wwaProd

**\*Note:** You should not have files in this directory (with or without XXX- prefixes) that have local geographic information in them like XXX-radarsInUse.txt, radarsInUse.txt, XXXradarsOnMenu.txt, XXX-mainConfig.txt, XXX-dialRadars.txt, XXX-mosaicInfo.txt, etc.

### **2./awips/fxa/WEScustomization/XXX**

dialRadars.txt  
XXX-acqPatternAddOns.txt  
XXX-commonLdadMenus.txt  
XXX-commonLdadMenus.txt.bad  
XXX-dialRadars.txt XXX-eta12.sup  
XXX-hydroSiteConfig.txt  
XXX-mainConfig.txt  
XXX-portInfo.txt  
XXX-pupId.txt  
XXX-radarDataMenus.template  
XXX-radarsInUse.txt  
XXX-radarsOnMenu.txt  
XXX-spotters.goodness XXX-  
wwaConfig.template XXX-  
wwaConfig.txt XXX-

wwa\_counties.master XXX-  
wwa\_counties.patch XXX-  
wwa\_zones.master XXX-  
wwa\_zones.patch

**\*Note:** Because this directory is for your local CWA (XXX in this example), and it is not shared with other localizations, you may have files in this XXX directory that have local geographic information with or without the XXX- prefix like radarsInUse.txt, XXX-radarsInUse.txt, radarsOnMenu.txt, mainConfig.txt, dialRadars.txt, mosaicInfo.txt, etc.

### **3./awips/fixa/WEScustomization/customFiles**

activeGridSources.txt  
arrowStyle.rules  
browserFieldMenu.txt  
contourStyle.rules  
eta12.cdl  
eta12.sup  
gridImageStyle.rules  
gridPlaneTable.txt  
iconStyle.rules  
LocalCitiesInfo.txt  
localGridSourceTable.txt  
MTR.goodness MTR.primary  
XXX-backgroundMenus.txt  
XXX-dialRadars.txt  
XXX-localDataKeys.txt  
XXX-localDepictKeys.txt  
XXX-localProductButtons.txt  
XXX-mainConfig.txt  
XXX-mosaicInfo.txt XXX-radarsInUse.txt  
XXX-radarsOnMenu.txt  
XXX-sls\_county\_block.preTemplate  
XXX-wwa\_cem.preWWA  
XXX-wwa\_dam\_break.preWWA  
XXX-wwaDefaults.txt  
XXX-wwa\_ffw.preWWA  
XXX-wwa\_flflood\_sta.preWWA  
XXX-wwa\_svr2.preWWA  
XXX-wwa\_svr.preWWA  
XXX-wwa\_svrwx\_sta.preWWA  
XXX-wwa\_tor.preWWA  
XXX-wwa\_wrksls.preWWA  
XXX-wwa\_wrksls.wwaProd  
radarDataMenus.template  
radarDepictKeys.template  
radarProductButtonInfo.template

SiteChangesLog  
virtualFieldTable.txt  
WWA\_aircraft.preWWA WWA\_alert1.preWWA  
WWA\_alert2.preWWA  
WWA\_blizzard\_wrn.preWWA  
WWA\_bloodust\_adv.preWWA  
WWA\_bloodust\_wrn.preWWA  
WWA\_blosnow\_adv.preWWA  
WWA\_coast\_fld\_stmt.preWWA  
WWA\_coast\_fld\_wat.preWWA  
WWA\_coast\_fld\_wrn.preWWA  
WWA\_esf.preWWA  
WWA\_excheat\_wrn.preWWA  
WWA\_extheat\_wat.preWWA  
WWA\_extheat\_wrn.preWWA  
WWA\_ffld\_wat.preWWA  
WWA\_ffld\_wrn.preWWA  
WWA\_ffs.preWWA  
WWA\_flood\_wat.preWWA  
WWA\_flood\_wrn.preWWA  
WWA\_fog\_adv.preWWA  
WWA\_freeze\_adv.preWWA  
WWA\_freeze\_wrn.preWWA  
WWA\_frost\_adv.preWWA  
WWA\_frost\_wrn.preWWA  
WWA\_frzdrzl\_adv.preWWA  
WWA\_frzrain\_adv.preWWA  
WWA\_frzrain\_wrn.preWWA  
WWA\_hazard\_outlk.preWWA  
WWA\_heat\_adv.preWWA  
WWA\_heat\_outlook.preWWA  
WWA\_hiwind\_wat.preWWA  
WWA\_hiwind\_wrn.preWWA  
WWA\_hurricane\_wat.preWWA  
WWA\_hurricane\_wrn.preWWA WWA\_hvysnow\_wrn.preWWA  
WWA\_icestrm\_adv.preWWA  
WWA\_icestrm\_wrn.preWWA  
WWA\_mws.preWWA  
WWA\_now.preWWA  
WWA\_npw.preWWA  
WWA\_pns.preWWA  
WWA\_pub\_info.preWWA  
WWA\_rec\_evt.preWWA  
WWA\_redflag\_wat.preWWA  
WWA\_redflag\_wrn.preWWA  
WWA\_severe\_outlook.preWWA

WWA\_short.preWWA  
WWA\_slv\_adv.preWWA  
WWA\_slv\_wrn.preWWA  
WWA\_smoke\_adv.preWWA  
WWA\_snow\_adv.preWWA  
WWA\_specialstmt.preWWA  
WWA\_svrstmt.preWWA  
WWA\_svrw\_wat\_sls.preWWA  
WWA\_svrw\_wat\_wcn.preWWA  
WWA\_tor\_wat\_sls.preWWA  
WWA\_tor\_wat\_wcn.preWWA  
WWA\_tropstorm\_wat.preWWA  
WWA\_tropstorm\_wrn.preWWA  
wwa\_urbssflood\_adv.preWWA  
WWA\_volash\_adv.preWWA  
WWA\_volash\_wrn.preWWA  
WWA\_wcn.preWWA  
WWA\_wind\_adv.preWWA  
WWA\_wintstrm\_wat.preWWA  
WWA\_wintstrm\_wrn.preWWA  
WWA\_winwea\_adv.preWWA  
WWA\_wndchil\_adv.preWWA  
WWA\_wndchil\_wrn.preWWA  
WWA\_wsr88d.preWWA  
WWA\_wsw.preWWA  
WWA\_ww\_outlk.preWWA

**\*Note:** For files in the customFiles directory *without the XXX- prefix* you should not have files that contain local geographic information in them like radarsInUse.txt, radarsOnMenu.txt, mainConfig.txt, dialRadars.txt, mosaicInfo.txt, etc.

#### **4. /awips/fxa/WEScustomization/mainConfig**

genericmainConfig.txt (with the following entries inside the genericmainConfig.txt file):

@@@RADAR\_Z 1000  
@@@RADAR\_V 1002  
@@@RADAR\_8 1018

## **Appendix B**

### Creating FFG Data for an Old Case From Recent FFG Data

1. If you have an old case, and you have some digital FFG data from a recent event that is reasonable to use, you may modify the files to work with the old case.
2. Copy the FFG files into your case as outlined in section 11.
3. For each file you will need to create a new FFG netCDF file with the modified time.
4. Use “ncdump” to create a text version of the file to modify. The following examples will illustrate creating a 19910426\_1200.multi file from a 19970501\_1200.multi file.

**e.g. “ncdump 19970501\_1200.multi > tmp.txt”**

5. Determine the time of the new FFG data you wish to create (e.g. 19910426\_1200).
6. Create a file, newtime.txt, with the time entered in the following format: ss mm hh dd MM YYYY where ss is the seconds, mm is minutes, hh is hour, dd is day, MM is month, and YYYY is year (e.g. 00 00 12 26 04 1991).
7. Obtain the julian seconds from 1970 for this time by running

**“/awips/fxa/DRT/calJulSecFrom1970.linux < newtime.txt”**

8. Edit the text version of the FFG data (e.g. “vi tmp.txt”) and replace the integer following “validTime =” with the new julian seconds from 1970 time calculated in step 7, and save the file.
9. Create a new netCDF file from your modified text file using ncgen.

**e.g. “ncgen -o 19910426\_1200.multi tmp.txt”**

10. Remove all the old files just leaving the updated FFG file.
11. Start D2D, and verify the FFG data is visible, and that it loads the appropriate time.
12. Repeat the process for each FFG file in the 1hr, 3hr, and 6hr directories.
13. If the data are displaying correctly, try creating new FFMP data with Section 11.

**\*Note:** If the integer seconds time is entered incorrectly inside the file, the data will still display correctly, but the FFMPprocessor will fail to time match the FFG data when new data is created with WES.

## Appendix C

### **Fixing Old SCAN and DMD Datasets for Use with OB5.0**

In OB5.0, SCAN data and DMD data both changed format. If you have a pre-OB5 SCAN or DMD data set, the SCAN storm cells table will no longer load, and the DMD data will not be displayable under the radar Graphics submenu (outside of SCAN).

The following steps detail how to make pre-OB5.0 SCAN and DMD data visible in OB5.0.

1. convert the case containing the SCAN and/or DMD data to DRT format
2. make sure you have "<your\_case>/tstorm", and "<your\_case>/radar/kxxx/tstorm", where kxxx is your radar  
  
\***Note:** These tstorm directories have much different contents. If you don't have these, then copy both of them from your real-time AWIPS.
3. create an OB5.0 localization using mainScript.csh with WES5.0
4. run mainScript.csh with the "-scan" switch (e.g. mainScript.csh -scan OUN OUN)
5. run a simulation for the time period of interest using WES5.0
6. verify the new data is being created during the simulation
7. after the simulation is over, verify the new data is visible
8. run cp scandmd2a.csh /data/awips/<your\_casename> to permanently copy the data into the DRT format "a" files
9. now your case contains OB5 SCAN and DMD data, and you do not need to do these steps again unless you want a different time period